



CERTIFICATE OF ANALYSIS

Work Order	: PR2381178	Issue Date	: 28-Jul-2023
Customer	: ALS Life Sciences Ltd	Laboratory	: ALS Czech Republic, s.r.o.
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Project	: MCP-042180723	Page	: 1 of 4
Order number	: ----	Date Samples	: 20-Jul-2023
		Received	
		Quote number	: PR2012ALSLI-IE0002 (CZ-200-12-0931_V3)
Site	: ----	Date of test	: 20-Jul-2023 - 28-Jul-2023
Sampled by	: customer	QC Level	: ALS CR Standard Quality Control Schedule

General Comments

This report shall not be reproduced except in full, without prior written approval from the laboratory.

The laboratory declares that the test results relate only to the listed samples. If the section "Sampled by" of the Certificate of analysis states: "Sampled by Customer" then the results relate to the sample as received.

Sample(s) PR2381178/001, method W-HG-AFSDG - LOR for particular sample raised due to dilution prior to analysis.

Should a sample contain sediment it is decanted prior to volatile compounds determination.

All results highlighted in Bold indicate a reading above the Limit of Reporting (LOR) only for that test, and are not compared with any parametric value.

Responsible for accuracy

Testing Laboratory No. 1163
Accredited by CAI according to
CSN EN ISO/IEC 17025:2018

Signatories

Lubomír Pokorný

Position

Country Manager



The company is certified according to ČSN EN ISO 14001 (Environmental management systems) and ČSN ISO 45001 (Occupational health and safety management systems)



Analytical Results

Sub-Matrix: EFFLUENT

Client sample ID

5664692

Effluent Sample

PR2381178001

Laboratory sample ID
Client sampling date / time

18-Jul-2023

Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Aggregate Parameters									
Oil and Grease	W-TECD-IR	0.050	mg/L	<0.050	---	---	---	---	---
Nonmetallic Inorganic Parameters									
Anionic Surfactants as MBAS	W-SURA-CFA	0.020	mg/L	<0.020	---	---	---	---	---
Total Metals / Major Cations									
Aluminium	W-METAXDG1	0.010	mg/L	0.039	± 10.0%	---	---	---	---
Antimony	W-METAXDG1	0.020	mg/L	<0.020	---	---	---	---	---
Arsenic	W-METAXDG1	0.010	mg/L	<0.010	---	---	---	---	---
Barium	W-METAXDG1	0.00050	mg/L	0.00490	± 10.0%	---	---	---	---
Beryllium	W-METAXDG1	0.00020	mg/L	<0.00020	---	---	---	---	---
Boron	W-METAXDG1	0.010	mg/L	0.018	± 10.0%	---	---	---	---
Cadmium	W-METAXDG1	0.0020	mg/L	<0.0020	---	---	---	---	---
Calcium	W-METAXDG1	0.050	mg/L	6.79	± 10.0%	---	---	---	---
Chromium	W-METAXDG1	0.0020	mg/L	<0.0020	---	---	---	---	---
Cobalt	W-METAXDG1	0.0020	mg/L	<0.0020	---	---	---	---	---
Copper	W-METAXDG1	0.0020	mg/L	0.0202	± 10.0%	---	---	---	---
Iron	W-METAXDG1	0.0050	mg/L	0.164	± 10.0%	---	---	---	---
Lead	W-METAXDG1	0.010	mg/L	<0.010	---	---	---	---	---
Magnesium	W-METAXDG1	0.020	mg/L	0.580	± 10.0%	---	---	---	---
Manganese	W-METAXDG1	0.00050	mg/L	0.00590	± 10.0%	---	---	---	---
Mercury	W-HG-AFSDG	0.0200	µg/L	<0.0538	---	---	---	---	---
Molybdenum	W-METAXDG1	0.0030	mg/L	0.0084	± 10.0%	---	---	---	---
Nickel	W-METAXDG1	0.0050	mg/L	<0.0050	---	---	---	---	---
Potassium	W-METAXDG1	0.015	mg/L	16.3	± 10.0%	---	---	---	---
Selenium	W-METAXDG1	0.030	mg/L	<0.030	---	---	---	---	---
Silver	W-METAXDG1	0.0050	mg/L	<0.0050	---	---	---	---	---
Sodium	W-METAXDG1	0.030	mg/L	288	± 10.0%	---	---	---	---
Strontium	W-METAXDG2	0.0010	mg/L	0.0134	± 10.0%	---	---	---	---
Thallium	W-METAXDG1	0.010	mg/L	<0.010	---	---	---	---	---
Uranium	W-METMSDG3	0.10	µg/L	0.20	± 10.0%	---	---	---	---
Vanadium	W-METAXDG1	0.0020	mg/L	<0.0020	---	---	---	---	---
Zinc	W-METAXDG1	0.0030	mg/L	0.0225	± 10.0%	---	---	---	---
BTEX									
Benzene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
Toluene	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
Ethylbenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
meta- & para-Xylene	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
ortho-Xylene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Sum of BTEX	W-VOCGMS01	1.60	µg/L	<1.60	---	---	---	---	---
Sum of xylenes	W-VOCGMS01	0.30	µg/L	<0.30	---	---	---	---	---
Sum of TEX	W-VOCGMS01	1.40	µg/L	<1.40	---	---	---	---	---
Halogenated Volatile Organic Compounds									
Vinyl chloride	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
trans-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Dichloromethane	W-VOCGMS01	6.0	µg/L	<6.0	---	---	---	---	---
1,1-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
cis-1,2-Dichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,1-Dichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Chloroform	W-VOCGMS01	0.30	µg/L	2.02	± 40.0%	---	---	---	---
1,2-Dichloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	---	---	---	---
1,1,1-Trichloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Tetrachloromethane	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
Bromodichloromethane	W-VOCGMS01	0.10	µg/L	1.06	± 40.0%	---	---	---	---
Trichloroethene	W-VOCGMS01	0.10	µg/L	<0.10	---	---	---	---	---
1,1,2-Trichloroethane	W-VOCGMS01	0.20	µg/L	<0.20	---	---	---	---	---
Dibromochloromethane	W-VOCGMS01	0.10	µg/L	0.33	± 40.0%	---	---	---	---



Sub-Matrix: EFFLUENT

Client sample ID

5664692

Effluent Sample

Laboratory sample ID

PR2381178001

Client sampling date / time

18-Jul-2023

Parameter	Method	LOR	Unit	Result	MU	Result	MU	Result	MU
Halogenated Volatile Organic Compounds - Continued									
Tetrachloroethene	W-VOCGMS01	0.20	µg/L	<0.20	---	----	----	----	----
1.1.1.2-Tetrachloroethane	W-VOCGMS01	0.10	µg/L	<0.10	---	----	----	----	----
Chlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	----	----	----
Bromoform	W-VOCGMS01	0.20	µg/L	<0.20	---	----	----	----	----
1.1.2.2-Tetrachloroethane	W-VOCGMS01	1.00	µg/L	<1.00	---	----	----	----	----
1.2-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	----	----	----
1.4-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	----	----	----
1.3-Dichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	----	----	----
1.2.4-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	----	----	----
1.2.3-Trichlorobenzene	W-VOCGMS01	0.10	µg/L	<0.10	---	----	----	----	----
1.3.5-Trichlorobenzene	W-VOCGMS01	0.20	µg/L	<0.20	---	----	----	----	----
1.2-Dichloropropane	W-VOCGMS01	1.0	µg/L	<1.0	---	----	----	----	----
Sum of 4 Trihalomethanes	W-VOCGMS01	0.70	µg/L	3.41	---	----	----	----	----
Sum of 3 Dichlorobenzenes	W-VOCGMS01	0.30	µg/L	<0.30	---	----	----	----	----
Sum of 3 Trichlorobenzenes	W-VOCGMS01	0.40	µg/L	<0.40	---	----	----	----	----
Sum of 5 Chlorinated Ethenes	W-VOCGMS01	0.60	µg/L	<0.60	---	----	----	----	----
Non-Halogenated Volatile Organic Compounds									
Styrene	W-VOCGMS01	0.20	µg/L	<0.20	---	----	----	----	----
Methyl tert-Butyl Ether (MTBE)	W-VOCGMS01	0.20	µg/L	<0.20	---	----	----	----	----
tert-Butyl alcohol	W-VOCGMS01	5.0	µg/L	<5.0	---	----	----	----	----
Sum of BTEXS	W-VOCGMS01	1.8	µg/L	<1.8	---	----	----	----	----
Polycyclic Aromatics Hydrocarbons (PAHs)									
Naphthalene	W-PAHGMS05	0.100	µg/L	<0.100	---	----	----	----	----
Acenaphthylene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Acenaphthene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Fluorene	W-PAHGMS05	0.020	µg/L	<0.020	---	----	----	----	----
Phenanthrene	W-PAHGMS05	0.030	µg/L	<0.030	---	----	----	----	----
Anthracene	W-PAHGMS05	0.020	µg/L	<0.020	---	----	----	----	----
Fluoranthene	W-PAHGMS05	0.030	µg/L	<0.030	---	----	----	----	----
Pyrene	W-PAHGMS05	0.060	µg/L	<0.060	---	----	----	----	----
Benz(a)anthracene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Chrysene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Benzo(b)fluoranthene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Benzo(k)fluoranthene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Benzo(a)pyrene	W-PAHGMS05	0.0200	µg/L	<0.0200	---	----	----	----	----
Indeno(1.2.3.cd)pyrene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Benzo(g,h,i)perylene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Dibenz(a,h)anthracene	W-PAHGMS05	0.010	µg/L	<0.010	---	----	----	----	----
Sum of 16 PAH	W-PAHGMS05	0.370	µg/L	<0.370	---	----	----	----	----
Sum of PAH (MoE)	W-PAHGMS05	0.190	µg/L	<0.190	---	----	----	----	----
Sum of 6 PAH (WHO)	W-PAHGMS05	0.0900	µg/L	<0.0900	---	----	----	----	----
Sum of 4 PAH	W-PAHGMS05	0.040	µg/L	<0.040	---	----	----	----	----
PCBs									
PCB 28	W-PCBGMS05	0.00110	µg/L	<0.00110	---	----	----	----	----
PCB 52	W-PCBGMS05	0.00110	µg/L	<0.00110	---	----	----	----	----
PCB 101	W-PCBGMS05	0.000750	µg/L	<0.000750	---	----	----	----	----
PCB 118	W-PCBGMS05	0.00110	µg/L	<0.00110	---	----	----	----	----
PCB 138	W-PCBGMS05	0.00120	µg/L	<0.00120	---	----	----	----	----
PCB 153	W-PCBGMS05	0.00110	µg/L	<0.00110	---	----	----	----	----
PCB 180	W-PCBGMS05	0.000950	µg/L	<0.000950	---	----	----	----	----
Sum of 6 PCBs	W-PCBGMS05	0.00620	µg/L	<0.00620	---	----	----	----	----
Sum of 7 PCBs	W-PCBGMS05	0.00730	µg/L	<0.00730	---	----	----	----	----

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Measurement uncertainty is expressed as expanded measurement uncertainty with coverage factor k = 2, representing 95% confidence level.

Key: LOR = Limit of reporting; MU = Measurement Uncertainty. The MU does not include sampling uncertainty.



The end of result part of the certificate of analysis

Brief Method Summaries

Analytical Methods	Method Descriptions
<i>Location of test performance: Bendlova 1687/7 Ceska Lipa Czech Republic 470 01</i>	
W-SURA-CFA	CZ_SOP_D06_07_067 (CSN ISO 16265, SKALAR company methodology, CSN EN 903) Determination of anionic surfactants by methylen blue (MBAS) by continuous flow analysis (CFA) method spectrophotometrically.
<i>Location of test performance: Na Harfe 336/9 Prague 9 - Vysocany Czech Republic 190 00</i>	
W-HG-AFSDG	CZ_SOP_D06_02_096 (US EPA Method 245.7, CSN EN ISO 17852) - Determination of Mercury by Fluorescence Spectrometry. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-METAXDG1	CZ_SOP_D06_02_001 (US EPA Method 200.7, CSN EN ISO 11885, US EPA Method 6010, SM 3120, CSN 75 7358) - Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-METAXDG2	CZ_SOP_D06_02_001 (US EPA Method 200.7, CSN EN ISO 11885, US EPA Method 6010, SM 3120, CSN 75 7358) - Determination of elements by atomic emission spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca+Mg. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-METMSDG3	CZ_SOP_D06_02_002 (US EPA Method 200.8, CSN EN ISO 17294-2, US EPA Method 6020A, CSN 75 7358) - Determination of elements by mass spectrometry with inductively coupled plasma and stoichiometric calculations of compounds concentration from measured values including the calculation of total mineralization and calculating the sum of Ca +Mg. Sample was homogenized and mineralized by nitric acid in autoclave under high pressure and temperature prior to analysis.
W-PAHGMS05	CZ_SOP_D06_03_161 (US EPA Method 8270D; US EPA Method 8082A; ČSN EN ISO 6468; US EPA Method 8000D) Determination of semi volatile organic compounds by gas chromatography method with MS or MS/MS detection and calculation of semi volatile organic compounds sums from measured values
W-PCBGMS05	CZ_SOP_D06_03_161 (US EPA Method 8270D; US EPA Method 8082A; ČSN EN ISO 6468; US EPA Method 8000D) Determination of semi volatile organic compounds by gas chromatography method with MS or MS/MS detection and calculation of semi volatile organic compounds sums from measured values
W-TECD-IR	CZ_SOP_D06_02_059 (CSN 75 7506:2006, STN 83 0520-27:2015, STN 83 0540-4, SS 028145, D/S 209, SFS 3010) Determination of extractable substances by infrared spectrometry and calculation of polar extractable substances from measured values.
W-VOCGMS01	CZ_SOP_D06_03_155 (US EPA Method 624, US EPA Method 5021A, US EPA Method 8260, US EPA 8015, CSN EN ISO 10301, MADEP 2004, rev. 1.1, CSN ISO 11423, CSN EN ISO 15680) Determination of volatile organic compounds by gas chromatography method with FID and MS detection and calculation of volatile organic compounds sums from measured values.

The symbol "*" for the method indicates a test outside the scope of accreditation of the laboratory or subcontractor. If the UNICO-SUB code is stated in the method table, this only informs that the tests have been performed by a subcontractor and the results are given in an annex to the test report, including information on test accreditation. If the lab used for matrix outside the scope of accreditation or non-standard sample matrix procedure specified in the accredited method and issues non-accredited results, this fact is stated on the title page of this protocol in the section "Notes". If the test report shows the results of subcontracting, the place of performance of the test is outside the laboratories of ALS Czech Republic, s.r.o.

The method for calculating of the summation parameters is available on request in the customer service.